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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/643,921	08/23/2000	Wilf LeBlanc	36795/CAG/B600	2488

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EXAMINER

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/643,921

Applicant(s)

LEBLANC ET AL.

Examiner

Daniel Swerdlow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-108 is/are pending in the application.
- 4a) Of the above claim(s) 5-16, 21-32, 34, 38-48, 53-62, 67-76, 81-92 and 97-108 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 4, 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 17, 18, 33, 35, 49, 50, 63, 64, 77, 78 and 93-95 is/are rejected.
- 7) ☒ Claim(s) 36, 37, 51, 52, 65, 66, 79, 80 and 96 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 17, 33, 49, 63, 77, 93 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton (US Patent 5,721,923) in view of Cole (US Patent 6,633,894).**
3. Regarding Claim 1, Hamilton discloses a technique for allocating resources in a call processing system (abstract) (i.e., a method of managing resources of a system) comprising: providing processing resources to a channel (i.e., processing a signal) (column 2, lines 29-32); determining what level of resource is required (i.e., estimating signal processing complexity) (Fig. 1, step 107; column 4, lines 13-15); and selecting a performance level (i.e., adjusting adaptation speed) of an echo canceller by adjusting the length (i.e., changing the number of coefficients) of the echo canceller based on available processing headroom (i.e., when estimated complexity exceeds a threshold) (column 4, lines 21-35). Therefore, Hamilton anticipates all elements of Claim 1 except basing a signal processing complexity estimate on a characteristic of a processed signal. Cole discloses signal processing resource allocation (column 7, lines 31-34) in which an error signal (i.e., a characteristic of the processed signal) is used to determine adaptive filter length (i.e., estimate signal processing complexity) (column 6, lines 39-41). Cole further discloses that this practice conserves computing resources and electrical power (column 6, lines 52-54). It would have been obvious to one skilled in the art at the time of the invention

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to apply use of the signal characteristic to estimate processing complexity as taught by Cole to the technique taught by Hamilton for the purpose of realizing the aforesaid advantages.

4. Regarding Claim 17, Hamilton discloses a technique for allocating resources in a call processing system (abstract) (i.e., a method of managing resources of a system) comprising: performing DTMF detection, text-to-speech conversion and echo cancellation for a channel (i.e., performing a plurality of signal processing functions on a signal, including echo cancellation function) (column 3, lines 61-66); adjusting processing headroom in the system (i.e., estimating and summing average complexity of each of the processing functions) (Fig. 1, step 109; column 4, lines 36-44; column 7, lines 1-9); and selecting a performance level (i.e., adjusting adaptation speed) of an echo canceller by adjusting the length (i.e., changing the number of coefficients) of the echo canceller based on available processing headroom (i.e., when the sum of estimated average complexities exceeds a threshold) (column 4, lines 21-35). Therefore, Hamilton anticipates all elements of Claim 17 except basing a signal processing complexity estimate on a comparison between a first signal and a second signal. Cole discloses signal processing resource allocation (column 7, lines 31-34) in which an error signal (i.e., a comparison between a first signal and a second signal) is used to determine adaptive filter length (i.e., estimate signal processing complexity) (column 6, lines 39-41). Cole further discloses that this practice conserves computing resources and electrical power (column 6, lines 52-54). It would have been obvious to one skilled in the art at the time of the invention to apply use of the error signal to estimate processing complexity as taught by Cole to the technique taught by Hamilton for the purpose of realizing the aforesaid advantages.

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5. Regarding Claim 33, in addition to the elements shown above apropos of Claim 1, Hamilton discloses use of the system to assign resources of a voice processing system among telephone calls (i.e., a telephony device and a signal processor coupled thereto).
6. Claim 49 is essentially similar to Claim 1 and is rejected on the same grounds.
7. Claim 63 is essentially similar to Claim 17 and is rejected on the same grounds.
8. Regarding Claim 77, in addition to the elements shown above apropos of Claim 1, Hamilton discloses implementing the method using software (i.e., computer-readable media embodying a program of instructions executable by a computer to perform the method) (column 3, lines 37-39).
9. Regarding Claim 93, in addition to the elements shown above apropos of Claim 17, Hamilton discloses implementing the method using software (i.e., computer-readable media embodying a program of instructions executable by a computer to perform the method) (column 3, lines 37-39).
10. Regarding Claim 95, Hamilton further discloses selecting a less sophisticated echo canceller (i.e., reducing the complexity of the echo cancellation adaptation) (column 4, lines 29-32).
11. **Claims 2, 18, 35, 50, 64, 78 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Cole and further in view of Rust et al. (US Patent 5,263,083).**
12. Regarding Claims 2, 18, 35, 50, 64, 78 and 94, as shown above apropos of Claims 1, 17, 33, 49, 63, 77 and 93, respectively, the combination of Hamilton and Cole makes obvious all

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elements except the bypassing of the echo canceller and use of an echo suppressor when estimated complexity exceeds a threshold. Rust discloses use of half duplex operation (i.e., echo suppression) when resources for full duplex operation (i.e., echo cancellation) are unavailable (column 4, lines 59-68). Hamilton further discloses that this arrangement permits makes it possible to provide service to users even when echo canceller resources are unavailable. As such, it would have been obvious to one skilled in the art at the time of the invention to apply half-duplex fallback as taught by Rust to the combination made obvious by Hamilton and Cole for the purpose of providing service to more users.

***Allowable Subject Matter***

13. **Claims 36, 37, 51, 52, 65, 66, 79, 80 and 96 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

14. The following is a statement of reasons for the indication of allowable subject matter:

15. Regarding Claims 36, 51, 65 and 79, as shown above apropos of Claims 33, 49, 63, and 77, respectively, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating ERLE. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). Cole discloses estimating signal processing complexity from an error signal or a coefficient vector. As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating ERLE. Therefore Claims 36, 51, 65 and 79 are allowable matter.

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16. Claim 37 is allowable matter due to dependence from Claim 36.
17. Regarding Claims 52, 66, 80 and 96, as shown above apropos of Claims 49, 63, 77 and 93, respectively, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). Cole discloses estimating signal processing complexity from an error signal or a coefficient vector. As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Therefore Claims 52, 66, 80 and 96 are allowable matter.
18. **Claims 3, 4, 20 and 19 are allowed.**
19. The following is an examiner's statement of reasons for allowance:
20. Regarding Claim 3, as shown above apropos of Claim 1, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating ERLE. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). Cole discloses estimating signal processing complexity from an error signal or a coefficient vector. As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating ERLE. Therefore Claim 3 is allowable.
21. Claim 4 is allowable due to dependence from Claim 3.

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22. Regarding Claim 20, as shown above apropos of Claim 17, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). Cole discloses estimating signal processing complexity from an error signal or a coefficient vector. As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Therefore Claim 20 is allowable.

23. Claim 19 is allowable due to dependence from Claim 20.

### ***Response to Arguments***

24. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**



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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Swerdlow  
Examiner  
Art Unit 2646

ds  
28 July 2005